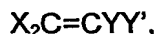


CLAIMS

1. A tagged scale-inhibiting polymer comprising scale inhibiting units and tagging units, wherein the tagging units are units deriving from a monomer having the following formula:



wherein:

- X, which is identical or different, is a hydrogen atom, or a C₁-C₄ alkyl group,
- Y, is a hydrogen atom or a C₁-C₄ alkyl group,
- Y' is a group having formula -L-Arom, wherein
 - L is a covalent bond or a divalent organic linking group optionally comprising heteroatoms, and
 - Arom is a group comprising at least two conjugated aromatic rings, preferably at least three, said rings comprising conjugated carbon atoms, and optionally nitrogen or oxygen atoms, and, linked to said carbon atoms, hydrogen atoms or substituents.

2. A copolymer according to claim 1, wherein the tagging units are units deriving from the monomer having formula X₂C=CY Y', and wherein Arom is a group having at least 10 conjugated carbon atoms, preferably at least 14 carbon atoms in at least three conjugated aromatic rings.

3. A copolymer according to one of the preceding claims, wherein the conjugated aromatic rings are C₅ or C₆ rings.

4. A copolymer according to one of the preceding claims, wherein Arom is a group having a naphthalene, an anthracene, a pyrene or a phenanthrene moiety, said moiety having optionally substituents.

5. A copolymer according to one of the preceding claims, wherein L is a covalent bond or a divalent C₁-C₁₂ alkyl group, or a group having formula -O-, -CO-O-, CO-NH-, -O-CO-.

6. A copolymer according to one of the preceding claims, wherein the tagging units are units deriving from vinyl-anthracene, preferably from 9-anthracene.

7. A copolymer according to one of the preceding claims, wherein the molar amount of tagging units in the copolymer is of from 0.01 to 10%.

8. A copolymer according to one of the preceding claims, wherein the scale inhibiting units derive from monomers selected from the group consisting of:

- vinyl sulfonic acid, or vinyl sulfonates salts,
- 10 - vinyl phosphonic acid, or vinyl phosphonates salts
- acrylic acid, methacrylic acid,
- maleic anhydride, maleic acid,
- styrene-p-sulfonic acid, or styrene sulfonates salts,
- acrylamido-2-methylpropanesulfonic acid (AMPS), and
- 15 - mixtures thereof.

9. A composition comprising the scale-inhibiting copolymer according to one of the preceding claims.

20 10. A composition according to claim 9, being a fluid.

11. A composition according to claim 10, wherein said fluid comprises a scale inhibiting amount of the copolymer, preferably of from 0.1 to 1000 ppm by weight.

25 12. A composition according to claim 10 or 11, wherein said fluid is comprised in or intended for industrial water systems having boilers, cooling towers, desalination plants, geothermal power production, mineral ore extraction, paper pulping or paper manufacture.

30 13. A composition according to claim 10 or 11, wherein said fluid is an oilfield, preferably water-based, fluid.

14. A composition according to claim 13 wherein the fluid is seawater, formation water, produced water, a drilling fluid, a completion fluid, a stimulating fluid, or a squeezing fluid.

- 5 15. A method for preventing or controlling scale formation in systems wherein there is a fluid circulation, preferably a water-based fluid circulation, comprising the steps of:
- adding in the fluid a scale-inhibiting amount of a tagged scale-inhibiting polymer, or forcing a tagged scale-inhibiting polymer into an oilfield wherein the fluid will be circulated,
 - 10 - periodically, continually, or continuously measuring the amount of tags in the fluid, and
 - periodically, continually, or continuously further adding some more tagged scale-inhibiting copolymer when the measured amount is below a given value, and/ or re-forcing the tagged scale inhibiting polymer into the oilfield,
- 15 wherein the scale-inhibiting copolymer is a tagged scale-inhibiting copolymer according to one of claims 1 to 8.